Course Outline (Higher Education)

School: School of Education

Course Title: NUMERACY AND DIGITAL TECHNOLOGY

Course ID: EDMAS6029

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 070101

Description of the Course:
This course is designed to provide Pre-Service Teachers (PSTs) with a sound understanding of the mathematics in the lives of babies, toddlers, and young children. It will explore theoretical, cultural, historical, and current approaches to teaching mathematics and technology. It aims to build personal understanding of their own values and preferences toward the mathematics and technology in their lives, and explore how these can affect their pedagogical practices. They will explore regulatory requirements and family preferences and expectations, as well as ways to document and share children's mathematical learning with families. Throughout the course, the students will build a resource of learning experiences to meet a variety of mathematical content. Students will explore how these learning experiences can be modified to meet the needs of a range of children, including different ages, abilities, interests, and backgrounds.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the course but gained a final mark of 45 per cent or above and submitted all major assessment tasks.

Program Level:

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
Introductory					✔	
Intermediate						
Advanced						

Learning Outcomes:

Knowledge:

K1. Examine and review historical and current teaching approaches for teaching early childhood mathematics and technology

K2. Research cultural approaches to teaching mathematics to young children

K3. Make connections between teachers' actual and perceived mathematical abilities and confidence levels in teaching mathematics

K4. Explore how children's positive mathematical experiences can build self-efficacy and wellbeing

Skills:

S1. Observe and identify the mathematics in children's interactions during individual, small group, and whole group experiences

S2. Identify technologies to facilitate children's mathematical learning

S3. Build mathematical terminology

S4. Share information with families on children's learning

Application of knowledge and skills:

A1. Create a resource folder of learning experiences that can be used to teach mathematical and technological content

A2. Plan learning experiences that can provide positive mathematical and technology learning

A3. Design learning opportunities that incorporate mathematics into other curriculum areas

Course Content:

Topics to be covered may include:

- Historical and current teaching practices in early childhood mathematics and technology
- How young children learn mathematics through play and everyday experiences
- Age appropriate mathematical terminology and experiences
- Personal values and biases toward mathematics
- Planning for learning including those with diverse linguistic, religious and socioeconomic backgrounds
- Building children's confidence and wellbeing
- Sourcing and planning with natural and recycled manipulatives
- Linking learning experiences to the EYLF and Victorian Curriculum
- Use of ICT in mathematical learning
- Sharing children's learning with families
- Identifying and connecting with the mathematical content in storybooks

Values:

V1. Appreciate the culturally different approaches to early childhood mathematics.

V2. Develop confidence in personal mathematical pedagogical content knowledge.

V3. Demonstrate a positive attitude to mathematics

Graduate Attributes

The Federation University FedUni graduate attributes (GA) are entrenched in the Higher Education Graduate Attributes Policy (LT1228). FedUni graduates develop these graduate attributes through their engagement in explicit learning and teaching and assessment tasks that are embedded in all FedUni programs. Graduate attribute attainment typically follows an incremental development process mapped through program

progression. **One or more graduate attributes must be evident in the specified learning outcomes and assessment for each FedUni course, and all attributes must be directly assessed in each program**

Graduate attribute and descriptor		Development and acquisition of GAs in the course	
		Learning Outcomes (KSA)	Assessment task (AT#)
GA 1 Thinkers	Our graduates are curious, reflective and critical. Able to analyse the world in a way that generates valued insights, they are change makers seeking and creating new solutions.	Not applicable	Not applicable
GA 2 Innovators	Our graduates have ideas and are able to realise their dreams. They think and act creatively to achieve and inspire positive change.	Not applicable	Not applicable
GA 3 Citizens	Our graduates engage in socially and culturally appropriate ways to advance individual, community and global well-being. They are socially and environmentally aware, acting ethically, equitably and compassionately.	K4	AT1, AT2
GA 4 Communicators	Our graduates create, exchange, impart and convey information, ideas, and concepts effectively. They are respectful, inclusive and empathetic towards their audience, and express thoughts, feelings and information in ways that help others to understand.	S4	AT3
GA 5 Leaders	Our graduates display and promote positive behaviours, and aspire to make a difference. They act with integrity, are receptive to alternatives and foster sustainable and resilient practices.	Not applicable	Not applicable

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K2, S1, S2, A2, A3 APST 1.2, 2.1, 2.5, 2.6, 3.2	Using provided scenarios, report on the range of mathematical concepts children may be exploring and discuss ways teachers may support the children's learning.	Report	10-30%
K1, K2, K3, K4, APST 1.2, 1.3, 6.2, 7.3,	Explore the role of the educator in teaching early childhood mathematics. Exploring their own values and biases in a culturally diverse learning environment.	Essay	40-60%
K2, K4, S3, S4, A1, A2, A3 APST 1.2, 1.3, 2.1, 2.2, 2.6, 3.4, 7.3.	Plan and present a selection of learning experiences used to build children's mathematical development across the birth to Year 2 age groups. Including ways to document and share this information with families.	Resource Presentation	20-40%

Adopted Reference Style:

APA

Refer to the library website for more information

Fed Cite - referencing tool

Professional Standards / Competencies:

Australian Professional Standards for Teachers (AITSL) - Graduate Teacher: Initial

Attribute	Assessed	Level
Professional Knowledge		
1. Know students and how they learn		
1.2 Understand how students learn Demonstrate knowledge and understanding of research into how students learn and the implications for teaching.	Yes	Introductory
1.3 Students with diverse linguistic, cultural, religious and socioeconomic backgrounds Demonstrate knowledge of teaching strategies that are responsive to the learning strengths and needs of students from diverse linguistic, cultural, religious and socioeconomic backgrounds.	Yes	Introductory
2. Know the content and how to teach it		
2.1 Content and teaching strategies of the teaching area Demonstrate knowledge and understanding of the concepts, substance and structure of the content and teaching strategies of the teaching area.	Yes	Introductory
2.2 Content selection and organisation Organise content into an effective learning and teaching sequence.	Yes	Introductory
2.5 Literacy and numeracy strategies Know and understand literacy and numeracy teaching strategies and their application in teaching areas.	Yes	Introductory
2.6 Information and Communication Technology (ICT) Implement teaching strategies for using ICT to expand curriculum learning opportunities for students.	Yes	Introductory
Professional Practice		
3. Plan for and implement effective teaching and learning		
3.2 Plan, structure and sequence learning programs Plan lesson sequences using knowledge of student learning, content and effective teaching strategies.	Yes	Introductory
3.4 Select and use resources Demonstrate knowledge of a range of resources, including ICT, that engage students in their learning.	Yes	Introductory
Professional Engagement		
6. Engage in professional learning		

6.2 Engage in professional learning and improve practice Understand the relevant and appropriate sources of professional learning for teachers.	Yes	Introductory

7. Engage professionally with colleagues, parents/carers and the community

7.3 Engage with the parents/carers Understand strategies for working effectively, sensitively and confidentially with parents/carers.	Yes	Introductory